

**REMARKS**

Claims 25-58 are pending in the application. Claims 1-24 have previously been canceled. Claims 29-32, 36, and 38-58 have been withdrawn. Claims 25-26 and 37 have been amended. Support for the amendments can be found in the specification and claims of the original application and no new matter has been introduced. Specifically, claims 26 and 37 have been amended to delete the phrase “the material of” and clarify the subject matter which Applicants regard as the invention. Claim 37 has been amended to reflect its dependency from claim 36 as a process claim.

**I. REJECTIONS UNDER 35 U.S.C. § 112**

**A. Rejection of Claims 25-28 and 33-35 under 35 U.S.C. § 112, 1<sup>st</sup> paragraph**

The Office Action has rejected claims 25-28 and 33-35 under 35 U.S.C. § 112, 1<sup>st</sup> paragraph, as allegedly failing to comply with the written description requirement. Applicants respectfully disagree with this rejection for the following reasons.

The Office Action incorrectly alleges that the subject matter of the rejected claims was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors had possession of the claimed invention at the time the application was filed. Specifically, the Office Action states that “nowhere is there a disclosure that the end product of a foamed material still consists of these starting materials [K1, K2, and K3], therefore the claimed invention appears to be new matter.”

As an initial matter, no new matter has been added to the application. Original claim 1, now canceled, recites “a foamed material consisting of a first fluid (K1) forming the matrix, a second fluid (K2) forming the foam bubbles (Z1), and an amphiphilic material (K3)...”

Moreover, the specification of the as-filed application discloses a foamed product containing each of the first fluid (K1), second fluid (K2), and amphiphilic material (K3). Applicants refer to the recited Example, beginning at paragraph [0053] of the published U.S. Application (US 2006/0127663), wherein a nanofoam is described. Specifically, paragraph [0056] refers to FIG. 1C, where the state after the end of the expansion can be seen. FIG. 1C specifically identifies K1, K2, and K3 in an exemplary nanofoam.

As the specification and the claims of the as-filed application describe and provide written support for Claim 25 and the claims dependent therefrom, this rejection should be withdrawn.

**B. Rejection of Claims 25-28, 33-35, and 37 under 35 U.S.C. § 112, 1<sup>st</sup> paragraph**

The Office Action has rejected claims 25-28, 33-35, and 37 under 35 U.S.C. § 112, 1<sup>st</sup> paragraph, as allegedly lacking enablement. Applicants respectfully disagree with this rejection for the following reasons.

The Office Action incorrectly alleges that a polymer or polymerizable monomer is critical or essential to the practice of the invention, but is not included in the claims. Applicants respectfully note that, while the first fluid (K1) can be a polymer or a polymerizable material, as described in paragraph [0017], the first fluid (K1) is not required to be a polymer or polymerizable material. Paragraph [0016] recites that “polar or nearly polar substances [is] proposed as the first fluid.” As such, any suitable polar or nearly polar substance can be utilized as a first fluid.

Further, the example described in the specification, beginning at paragraph [0052], and claim 35 describes, *inter alia*, a foamed material of water (first fluid), ethane (second fluid), and octaethyleneglycol monododecyl ether (amphiphilic material). As such, the presence of a polymer, polymerizable material, or a polymerization step is neither required nor critical to the practice of the invention.

The claims and specification of the application, such as, for example, the microemulsion referred to herein, sufficiently enable one of skill in the art to practice the invention, including the practice of such aspects that utilize water and/or a non-polymerizable material as a first fluid. As claim 25 and the claims dependent therefrom are enabled by the specification and claims of the as-filed application, this rejection should be withdrawn.

**C. Rejection of Claims 25-28 and 33-35 under 35 U.S.C. § 112, 2<sup>nd</sup> paragraph**

The Office Action has rejected claims 25-28 and 33-35 under 35 U.S.C. § 112, 2<sup>nd</sup> paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Applicants respectfully disagree with this rejection for the following reasons.

Specifically, the Office Action alleges that the phrase “previously adjusted state” recited in claim 25 lacks antecedent basis. As amended, the last paragraph of claim 25 recites, “wherein the pools (Po) have been transformed to foam bubbles (Z1) in which the second fluid (K2) is contained by changing the state of the second fluid (K2) from a nearly-critical or supercritical state to a subcritical state.” In view of the amendment reflected herein, this rejection should be withdrawn.

The Office Action also alleges that claim 28 is vague and indefinite because a claim that depends from a claim which consists of the recited elements or steps cannot add an element or step. While the use of closed language (*i.e.*, “consisting of”) can preclude the addition of other elements or steps, Applicants maintain that such use does not preclude further definition or narrowing of an element or step recited in the claim utilizing closed language.

Claim 25 recites a foamed material consisting of a first fluid (K1) forming the matrix, a second fluid (K2) forming the foam bubbles (Z1), and an amphiphilic material (K3). As described in paragraph [0016] of the specification, the first fluid (K1) can be a substance or mixture of substances. Claim 28 incorporates all of the features of claim 25, while providing further definition to the first fluid (K1), requiring that the first fluid (K1) be at least one substance selected from the group of substances consisting of polar substances and nearly polar substances. To that end, nothing in claim 25 limits the first fluid to an individual chemical species. Thus, claim 28 is definite and does not add elements to the subject matter of claim 25. Similarly, claims 26-28 and 33-35 are definite. Thus, this rejection should be withdrawn.

**II. REJECTION UNDER 35 U.S.C. § 102**

The Office Action has rejected claim 37 under 35 U.S.C. § 102(b), as allegedly being anticipated by U.S. Patent 5,840,820 to DeSimone *et al.* (hereinafter “DeSimone”). Applicants respectfully disagree with this rejection for the following reasons.

As an initial matter, claim 37 has been amended to reflect that it is a process claim, dependent from claim 36.

DeSimone does not disclose either a foamed material or a process having all of the features of the present application. DeSimone is directed to a process wherein carbon dioxide is used as a reaction medium in which reactants are solubilized. DeSimone fails to disclose a process or material wherein carbon dioxide is dispersed in the form of pools, such as, for example, the small pools of the present invention, and stabilized by an amphiphilic material in a matrix. In addition, DeSimone fails to describe other properties of the present invention and the foamed materials produced from the practice thereof, such as, for example, a foam bubble density in the first fluid of from  $10^{12}$  to  $10^{18}$  per  $\text{cm}^3$ .

As DeSimone fails to disclose each of the recited elements of the present invention, DeSimone does not anticipate claim 37 or any other claims of the present application. Thus, this rejection should be withdrawn.

**CONCLUSION**

Pursuant to the above Remarks and in view of the offered claim amendments, reconsideration and allowance of the pending application is believed to be warranted. The Examiner is invited and encouraged to directly contact the undersigned if such contact may enhance the efficient prosecution of this application to issue.

A credit card payment submitted via EFS Web in the amount of \$525.00, representing the fee for a small entity under 37 C.F.R. § 1.17(a)(3) for a Three-Month Extension of Time is enclosed. This amount is believed to be correct; however, the Commissioner is hereby

**ATTORNEY DOCKET NO. 04156.0016U1**  
**APPLICATION NO. 10/540,462**

authorized to charge any additional fees which may be required, or credit any overpayment to  
Deposit Account No. 14-0629.

Respectfully submitted,

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Name of Person Signing (Print/Type)	Kevin W. Hathcock		
Signature	/ Kevin W. Hathcock /	Date	April 9, 2008